



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

increased internal pressure of gas which causes the streaming from the tube. This continues until the sphagnum is dry.

OHNO conceived that the leaf of *Nelumbo* acts in a similar way, taking in the air thus by diffusion, which increases the internal pressure and leads to an extrusion at the central region where the texture is loose. He examined a number of other plants, but found no other case of a similar exchange.—WILLIAM CROCKER.

Respiratory intensity.—ROSÉ¹⁷ finds that the respiratory intensities of leaves, measured by cc. of CO₂ given off per hour per gram of green weight, varies with the illumination under which the plant is grown, and also with the stage of development of the plant. *Pisum sativum* and *Teucrium Scorodonia* were grown under cloth screens of various thicknesses. The light stopped by the screens was measured by means of a Vidal photometer. Rosé used four light intensities: V is full sunlight, IV is $V-2x$, III is $V-16x$, II is $V-22x$, x being the amount of light absorbed by a 5 mm. glass plate. Leaves were taken from the plants at different stages of their development, inclosed in a chamber with a known quantity of air, and put in a dark room. After a time the gas in the chamber was analyzed. For *Pisum sativum*, when two leaves have developed, the maximum respiratory intensity was found to be at illumination V, and there is a gradual decrease to II; but in the later stages the maximum is either at III, with a secondary increase at V, or the reverse. Rosé found that the structure of leaves developed under III and II was greatly modified. There was less lignified tissue and less cellulose; therefore, he thinks, there must be a greater amount of protoplasm and of carbohydrates in a given weight of leaf. There is less water in III than in II, therefore a greater percentage of oxidizable substance per gram of green weight. So, the author says, the respiratory maximum is displaced from V, the place of greatest dry weight, to III, the place of greatest amount of oxidizable substances. *Teucrium Scorodonia*, on the other hand, being a shade plant, has its greatest respiratory energy at IV, with its greatest dry weight.

The author's explanations of his results are not convincing. Some quantitative determinations of the enzymes present would be of value. The results found for leaves under the different illuminations would have been more nearly comparable if the water variant had been eliminated by measuring the respiration for a unit of dry weight.—SOPHIA ECKERSON.

Sporogenous tissue of Piper Betel.—The work of JOHNSON among Piperaceae is well known to morphologists, and he has now extended it by including *P. Betel monoicum*,¹⁸ a climbing Jamaican species with monosporangiate

¹⁷ ROSÉ, EDMOND, Énergie respiratoire chez les plantes cultivées à divers éclaircissements. Rev. Gén. Botanique 22:385-398. 1910.

¹⁸ JOHNSON, DUNCAN S., Studies in the development of the Piperaceae. I. The suppression and extension of sporogenous tissue in the flower of *Piper Betel* L. var. *monoicum* C. DC. Jour. Exp. Zool. 9:715-749. figs. 71 (year of publication not cited in separate).

flowers and immersed ovaries. The form is interesting in being dioecious, monoecious, or "monoeciously polygamous." The development of the sporangiate structures is of the usual angiospermous type. It is noteworthy that 100 or more antipodals appear and persist in the seed, although they contain little reserve food, which occurs chiefly in the starchy perisperm.

Chief attention, however, is given to the extreme variability in the development of sporogenous tissue as shown by different spikes or by different flowers of the same spike. The number of microsporangia produced by a stamen may vary from none to four, and the extent of a sporangium is widely variable. The point is made that these differences are not determined during the course of development, but are constant from the time of the initiation of the sporogenous tissue. Space relations in the spike hold no relation to the differences, for any condition may develop at any region of the spike. All that the author can suggest is that "the real cause is probably to be sought in those factors, internal or external, that disturb the normal production or course of movement of material in the plant."

Incidentally, the author concludes "that the tissue of the young spike, and often of the individual flower, must be hermaphrodite in character," since the differentiation of the two kinds of sporogenous tissue, involving the subsequent development of the two kinds of sexual tissue, "must take place at or after the initiation of the rudiments of the parts of the flower."—J. M. C.

Philippine forests.—WHITFORD'S continued investigations in the Philippine forests are making us better acquainted with tropical vegetation in comparison with the more familiar vegetation of the United States and Europe. A recent paper gives a detailed account of the forests dominated by members of the Dipterocarpaceae, a family whose name has to most of us an unfamiliar sound, though in the Philippines it is even more important than are pines and oaks with us, since it makes up 75 per cent of the virgin forest area;¹⁹ of the 40,000 square miles of Philippine virgin forest, 30,000 square miles are dominated by dipterocarps. From the lumberman's point of view the dipterocarps may be divided into three categories: those which yield hard and durable timber; those which yield a timber comparable to that of our hard pines; and those whose timber qualities resemble those of our soft pines. Dipterocarp timber compares favorably as to commercial value with the more familiar timbers of Europe and the United States. While some forests of temperate regions surpass those of the Philippines in the matter of bulk, the latter perhaps equal any temperate forests when the amount of the annual increment is taken into account together with the bulk. The best forests are found where climatic, edaphic, and biotic factors are at their optimum. Obvious growth rings occur in some trees, but are lacking or obscure in others; as yet it is not

¹⁹ WHITFORD, H. N., Studies in the vegetation of the Philippines. I. The composition and volume of the dipterocarp forests of the Philippines. Phil. Jour. Sci. 4:699-725. pls. 7. 1909.